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MAINE AGRICULTURAL EXPERIMENT STATION.

BULLETIN No. 11.

SECOND SERIES.

CORN AS A SILAGE CROP.

The report of the Station for 1891, pp. 41-46, gives a summary of three years' work in testing the relative production of food material by various fodder and root crops. It appeared that the large variety of corn known as Southern White produced the greatest amount of digestible dry substance per acre, excelling root crops, Hungarian Grass and other varieties of corn. Since 1891 a comparison between varieties of corn has been continued. This has been done because the corn crop is an important one to Maine dairymen and because the problems connected with its growth in Maine are local in their nature and cannot be solved by experiments in other states, excepting possibly New Hampshire and Vermont.

The most common question asked in this connection is, Which are the most profitable varieties to grow, the large, which mature only in a latitude south of New England, or the smaller, which complete their growth in this climate?

As set forth in the report previously mentioned, the proper test of productiveness is the yield of digestible dry matter, the gross weight of crop or even of total dry matter being deceptive because of differences in the water content and in digestibility. All effort has been directed, then, towards ascertaining the actual growth of digestible material in the several cases. One other point has necessarily been considered, viz.: The relative value of a pound of digestible material in the crops compared. This latter comparison can most safely be made by feeding experiments, and this has been the method used.

The study of the corn crop has been conducted in 1892 and 1893 in much the same manner as in previous years, only somewhat more comprehensively. The results secured are concisely

stated in the accompanying table, all intermediate data, such as size of plots and yield per plot, being omitted. The figures for the three years previous are stated for the sake of comparison.

COMPARATIVE YIELD OF SOUTHERN CORN AND MAINE FIELD CORN,
AS GROWN IN MAINE

		YIELD PER ACRE.			
	Green Corn. (whole plant.)	Dry substance.	Digestible Dry substance.		
Crop of 1888:	lbs.	%	lbs.	%	lbs.
Southern Corn	26.295	12.30	3234.3	65.	2102.3
Maine Field Corn.....	14.212	17.4	2472.9	70.	1720.5
Crop of 1890:					
Southern Corn.....	32.950	14.94	4922.7	69.	3396.7
Maine Field Corn...	15.300	15.84	2415.9	71.	1715.3
Crop of 1891:					
Southern Corn.....	46.340	13.46	6237.4	61.	3804.8
Maine Field Corn.....	28.080	13.55	3804.8	73.	2777.5
Crop of 1892:					
Southern Corn, Field 1.....	37.320	14.67	5474.8	64.	3503.9
Southern Corn, Field 2.....	34.820	14.15	4927.	64.	3153.2
Maine Field Corn, Field 1...	22.490	20.90	4700.	78.	3666.
Maine Field Corn, Field 2...	29.400	18.64	5480.	76.	4164.8
Crop of 1893:					
Southern Corn, Field 1.....	39.066	15.45	6035.7	65.*	3923.2
Southern Corn, Field 2.....	26.660	16.58	4420.2	65.*	2873.1
Maine Field Corn, Field 1...	27.780	25.43	7064.4	70.	4945.
Maine Field Corn, Field 2...	18.610	19.50	3628.9	70.	2540.2
Southern Corn, 7 trials:					
Maximum.....	46.340	16.58	6237.4	69.	3923.2
Minimum	26.295	12.30	3234.3	61.	2102.3
Average	34.761	14.50	5036.	65.	3251.
Maine Field Corn, 7 trials:					
Maximum.....	29.400	25.43	7064.4	78.	4945.
Minimum	14.212	13.55	2415.2	70.	1715.3
Average	22.269	18.75	4224.	73.	3076.

* The average of previous years.

The foregoing figures show a large variation in production in different years, under conditions other than the season, quite uniform. This variation is not alone in gross weight of crop, but in dry matter as well. The largest quantity of dry matter produced in any case during the five years is nearly three times that yielded by the smallest crop. This is in part due to manuring and cultivation and in part to the character of the season.

Had these experiments been discontinued after 1891 the outcome would have been decidedly favorable to the large variety of

Dent corn, but in 1892 and 1893 the relation of yield has been reversed and the smaller variety of Flint corn has taken the lead. It is probable that another five years' series of comparisons would furnish a somewhat similar experience.

The general outcome for the five years is slightly favorable to the large variety of corn if we consider only the yield of digestible dry matter. But when we take account of the fact that in the one case an average of five and one-half tons more of material have annually been handled over several times, we are led to conclude that the smaller, less watery variety of corn has really proved the more profitable. It is significant, also, that the largest yield of dry matter in any instance has been from the small variety. While the Flint corn grown in this State is not capable of storing so much dry substance as the large varieties of Dent corn, under circumstances equally favorable for both, the latter cannot in this latitude reach anything like maturity, and so loses the advantage of that period when growth is most rapid.

SUMMARY.

(1). The average weight per acre of the green crops for five years were: Southern Corn, 34,761 lbs.; Maine Field Corn, 22,269 lbs.; difference, 11,492 lbs., or nearly five and three-fourths tons.

(2). The average dry matter per hundred pounds was nearly one-third more in the Maine Field Corn, the relation being Southern Corn, 14.50 lbs.; Maine Field Corn, 18.75 lbs., or as 100 : 129.

(3). The Maine Field Corn proved to be the more digestible, the relation for dry matter being: Southern Corn, 65 per cent.; Maine Corn, 73 per cent., or as 100 : 112.

(4). The average pounds of digestible dry matter per hundred pounds of green corn have been: Southern Corn, 7.25 lbs.; Maine Field Corn, 13.69 lbs., or as 100 : 189.

(5). The average yield of dry matter per acre has been: Southern Corn, 5,036 lbs.; Maine Field Corn, 4,224 lbs.

(6). The average yield of *digestible* dry matter has been: Southern Corn, 3,251 lbs.; Maine Field Corn, 3,076.

(7). The yield of digestible dry matter has averaged 175 lbs. more with the Southern Corn. To offset this it has been necessary to handle annually five and three-fourths tons more weight.

(8). The largest as well as the smallest yield of digestible matter in a single year has come from the Maine Field Corn.

W. H. JORDAN.

MAINE STATE COLLEGE,
ORONO, ME., April 2, 1894. }

